INCH-POUND

ATPD-2263

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PURCHASE DESCRIPTION

REPAIR KIT AND PEPAIR KIT COMPONENTS, FOR COLLAPSIBLE FABRIC TANKS AND DRUMS

1. SCOPE

1.1 Scope. This specification covers repair kits and repair components required for temporary field repairs to seal holes in collapsible tanks and drums.

1.2 Classification. The repair kits shall be of the following types (see 6.2b).

Type I	–	For temporary repair of a collapsible fabric 55, 250 or 500 gallon water drum or 500 gallon fuel drum.
Type II	–	For temporary repair of a collapsible fabric water tank or fuel tank with a capacity rating of 10,000 gallon or less.
Type III	–	For temporary repair of a collapsible fabric water tank or fuel tank with a capacity rating greater than 10,000 gallon.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 Government documents.

2.2.1 Other Government documents and publications. The following other Government and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation.

FOOD AND DRUG ADMININISTRATION (FDA)

Code of Federal Regulations, Title 21, Chapter 1, Part 177

(Code of federal Regulations (CFR) and Federal Register (FR) are for sale on a subscription basis by the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. When indicated, reprints of certain regulations may be obtained from the Federal Agency responsible for issuance thereof.)

2.2.1 Non-Government publications. The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those listed in the issue of the Department of Defense Index of Specifications and Standards (DoDISS) and supplement thereto cited in the solicitation (see 6.2c).

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI/NSF 61 - Drinking Water Systems Components – Health Effects

(Copies can be obtained from the American National Standards Institute, 11 W. 42nd Street, New York, NY 10036.)

AMERICAN SOCIETY FOR QUALITY CONTROL (ASQC)

ANSI/ASQC Z1.4 - Sampling procedures and Tables for Inspection by Attributes

(Copies can be obtained from the American Society for Quality Control, 611 East Wisconsin Avenue, Milwaukee, WI 53202.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Description. The repair kits shall be used to make temporary repairs to collapsible tanks and drums that may contain potable water, JP-8 or diesel fuel. The tanks range in size from 3000 to 210,000 gallons and are normally constructed for a polyurethane coated nylon fabric material. The drums range in size from 55 to 500 gallons and are normally constructed for a nitrile-pvc blend with embedded nylon cords. Repair kits and repair components shall be as specified herein.

3.2 First article. When specified (see 6.2d), first article inspection shall be performed in accordance with 4.2. A sample shall be one completely assembled type I, type II and/or type III repair kit (see 6.2b).

3.3 Materials. Materials of construction are the responsibility of the contractor. The materials shall be of sufficient durability to meet all of the performance requirements and certifications of this specification.

3.3.1 Material deterioration prevention and control. The contractor shall certify that each component of the tank assembly is fabricated from compatible materials, inherently corrosion resistant, or treated to provide protection against various forms of corrosion or deterioration to which they are susceptible. The kits shall be capable of operating within a temperature range of –25 °F to 130 °F and relative humidity of 0 to 100%. The kit shall be capable of storage within a temperature range of –28 °F to 160 °F without damage.

3.3.2 Material medical standards. The plugs, mechanical patches and clamps shall contain no material or substances that might leach out or disintegrate and cause potable water to be non-drinkable. The contractor shall provide certification that all kit component surfaces that may come in contact with potable water conform to 21 CFR 177 and 182,less sections 177.1020 through 177.1480 or be listed as approved for use with drinking water by the National Sanitation Foundation under ANSI/NSF Standard 61.

3.4 Type I. The type I repair kit shall consist of the components as shown in table I.

Table I. Types, components and quantity.

Type	Component	Quantity
I	Container	1
	Plugs	1each size
	Mechanical patch, for the repair of a hole 7/16-inch in diameter	3
	Mechanical patch, for the repair of a hole 1-inch in diameter	3
	Tool(s), for cutting, insert and wrench as required	see 3.4.5
	Instructions, for type I repair kit	1
II	Container	1
	Plugs	1 each size
	Razor/knife	1
	Repair clamp, for the repair of a 2-1/4 inch long slit	1
	Repair clamp, for the repair of a 4-inch long slit	1
	Repair clamp, for the repair of a 6-inch long slit	2
	Instructions, type II & type III repair kits	1
III	Container	1
	Plugs	2 each size
	Razor/knife	1
	Repair clamp, for the repair of a 2-1/4 inch long slit	2
	Repair clamp, for the repair of a 4-inch long slit	2
	Repair clamp, for the repair of a 6-inch long slit	3
	Instructions, type II & type III repair kits	1

3.4.1 Container. The components of the type I repair kit shall fit securely inside the container. The container material shall be waterproof. The container shall be equipped with a latching device(s) for opening and closing the container. The container shall be permanently and legibly marked as specified below in an external location that is visible during normal use:

REPAIR KIT – TYPE I

FOR COLLAPSIBLE FABRIC DRUMS

NSN: (Specify)

3.4.2 Plugs. The dimensions of each plug shall be as specified in figure 1. The plugs shall be constructed from fuel and water resistant material.

3.4.3 Mechanical patch, for 7/16-inch diameter hole. The patch shall be capable of repairing a 7/16-inch diameter hole. The patch shall provide temporary repair to a collapsible drum.

3.4.4 Mechanical patch, for 1-inch diameter hole. The patch shall be capable of repairing a 1-inch diameter hole. The patch shall provide temporary repair to a collapsible drum.

3.4.5 Tool(s). A tool shall be provided with each kit that is capable of cutting a 0.43 ± 0.03 inch diameter hole when tested in accordance with 4.5.3. Any additional tools required to complete a repair with either mechanical patch, such as to insert or tighten down a patch, shall be provide with the repair kit.

3.4.6 Type I repair kit instructions. The instructions shall describe the procedures for making a repair with each of the type I components.

3.5 Type II. The type II repair kit shall consist of the components as shown in table I.

3.5.1 Container. The components of the type II repair kit shall fit securely inside the container. The container material shall be waterproof. The container shall be equipped with a latching device(s) for opening and closing the container. The container shall be permanently and legibly marked as specified below in an external location that is visible during normal use:

REPAIR KIT – TYPE II

FOR COLLAPSIBLE FABRIC TANKS

NSN: (Specify)

3.5.2 Plugs. The plugs shall be as specified in 3.4.2.

3.5.3 Razor/knife. For safety purposes, the blade of the razor/knife shall be retractable or covered with a sheath when not in use. The razor/knife shall be capable of cutting a polymer coated fabric of not less than 1/32 of an inch thick when tested in accordance with 4.5.6. The razor/knife shall be capable of enlarging a cut for the installation of a repair clamp by the kit user.

3.5.4 Repair clamps. The repair clamps shall be provided in three sizes, or one each, for the repair of a 2-1/4 inch long, a 4-inch long and a 6-inch long slit. These clamps shall provide

temporary repair to a collapsible fabric tank. No tool shall be required to install a repair clamp. The seal achieved by the clamps shall be hand tight (hand tight is equivalent to 30 inch-pounds.)

3.5.5 Type II and Type III repair kit instructions. The instructions shall describe the procedures for making a repair with each of the type II and type III components.

3.6 Type III. The type III repair kit shall consist of the components as shown in table I.

3.6.1 Container. The components of the type III repair kit shall fit securely inside the container. The container material shall be waterproof. The container shall be equipped with a latching device(s) for opening and closing the container. The container shall be permanently and legibly marked as specified below in an external location that is visible during normal use:

REPAIR KIT – TYPE III

FOR COLLAPSIBLE FABRIC TANKS

NSN: (Specify)

3.6.2 Plugs. The plugs shall be as specified in 3.4.2

3.6.3 Razor/knife. The razor/knife shall be as specified in 3.5.3.

3.6.4 Repair clamps. The repair clamps shall be as specified in 3.5.4.

3.6.5 Type III repair kit instructions. The type III repair kit instructions shall be as specified in 3.5.5.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as follows:

a. First article inspection (see 4.2).
b. Conformance inspection (see 4.3).

4.2 First article inspection. Unless otherwise specified (see 6.2d), first article inspection shall be performed on a sample(s) as specified in 3.1. The first article inspection shall include the examinations of 4.4 and the test schedule of 4.5. The presents of one or more defects shall constitute failure

4.3 Conformance inspection. Lot size and sample selection for conformance inspection shall be in accordance with ANSI/ASQC Z1.4. The conformance inspection shall include the examinations of 4.4.

4.4 Examination schedule. The first article and the production repair kit shall be examined as specified in table II for defects. The presents of one or more defects shall constitute failure.

Table II. Examination schedule.

Number	Defect	Method of Examination
101	Contractor does not have certification available for materials resistant to corrosion and deterioration for the applicable operating and storage environments (see 3.3.1).	Verification
102	Contractor does not have certification available to CFR or ANSI/NSF 61 compliance (see 3.3.2).	Verification
103	Type I, type II or type III (as applicable) component(s) missing (see table I).	Visual
104	Container not as specified (see 3.4.1, 3.5.1 and/or 3.6.1 as applicable).	Visual
105	Dimensions of plugs not as specified (see 3.4.2, 3.5.2 and/or 3.6.2 as applicable).	Verification
106	Instruction sheet not as specified (see 3.4.6, 3.5.5 and/or 3.6.5 as applicable).	Visual
107	The blade of the razor/knife not as specified (see 3.5.3 and 3.6.3).	Functional

4.5 Test schedule.

Table III. Test Schedule.

Test	Test Paragraph	Requirement Paragraph
Mechanical patch, 7/16-inch	4.5.1 & 4.5.4	3.4.3
Mechanical patch, 1-inch	4.5.2 & 4.5.5	3.4.4
Tool(s), type I repair kit	4.5.3, 4.5.4 & 4.5.5	3.4.5
Razor/knife	4.5.6	3.5.3
Repair clamps	4.5.7 & 4.5.8	3.5.4 & 3.6.4

4.5.1 Mechanical patch, for 7/16-inch diameter hole. One mechanical patch subjected to 4.5.4 shall be used to determine conformance with 3.4.3. The presence of one or more of the following defects shall constitute failure of this test:

a) The patch cannot be forced through a hole as specified.

b) A patch falls through a hole when attempting the repair.

c) Permanent deformation of separation of any part of the patch observed during or after testing.

d) The patch leaks at anytime during the pressure test.

4.5.2 Mechanical patch, for 1-inch diameter hole. One mechanical patch subjected to 4.5.5 shall be used to determine conformance with 3.4.4. The presence of one or more of the following defects shall constitute failure of this test:

a) The patch cannot be forced through a hole as specified.

b) A patch falls through a hole when attempting the repair.

c) Permanent deformation of separation of any part of the patch observed during or after testing.

d) The patch leaks at anytime during the pressure test.

4.5.3. Tool(s) - cutting, insert and wrenching. To determine the conformance to 3.4.5, the type I repair kit tool(s) shall be subjected to the test procedures of 4.5.4 and 4.5.5. The presence of one or more of the following defects shall constitute a failure of this test:

a) The 0.43-inch diameter hole not cut by the tool as specified.

b) Tool(s) not compatible with the patch as specified.

c) Tools cannot or not available to complete the repair.

d) Permanent deformation or separation of any part of a tool(s) observed during or after testing.

4.5.4 Pressure test procedure – 0.43-inch diameter hole: One hole shall be cut into a polymer coated fabric material that is a minimum of 1/8 of an inch thick. The type I kit cutting tool (see 3.4.5) shall be used to cut the hole in this material in less than 30 seconds. The hole shall penetrate completely through the coated fabric and have a diameter of 0.43 ± 0.03 inches. Repair the hole with a 7/16-inch mechanical patch and only tools provided with the type I kit. The repair shall be accomplished with access to only one side of the coated fabric. Using water as a test fluid, apply a 3 psi pressure to the coated fabric material side that has the bottom portion of the mechanical patch exposed. Hold the pressure at a minimum of 3 psi for 24 hours. Attempts to retighten the repair will be allowed only during the first hour of the pressure test.

4.5.5 Pressure test procedure – 1-inch diameter hole: One hole shall be cut into a polymer coated fabric material that is a minimum of 1/8 inches thick. The type I kit cutting tool (see 3.4.5) shall be used to cut the hole in this material in less than 30 seconds. The hole shall penetrate completely through the coated fabric and have a diameter of 0.43 ± 0.03 inches. Repair the hole with a 1-inch mechanical patch and only tools provided with the type I kit. The repair shall be accomplished with access to only one side of the coated fabric. Using water as a test fluid, apply a 3 psi pressure to the coated fabric material side that has the bottom portion of the

mechanical patch exposed. Hold the pressure at a minimum of 3 psi for 24 hours. Attempts to retighten the repair will be allowed only during the first hour of the pressure test.

4.5.6 Razor/knife. To determine the conformance to 3.5.3, the razor/knife shall be used to cut a total of five 6-inch minimum length cuts in a polyurethane coated nylon fabric material not less than 1/32 of an inch thick. Each cut shall completely separate the coated fabric along the length of the cut. The cut shall not begin or end within 1-inch of the perimeter of the coated fabric. The razor/knife shall not be sharpened or cleaned during the test. All five cuts shall be made in less than 2 minutes. Failure of the razor/knife to make all five cuts as specified shall constitute a failure of this test.

4.5.7 Repair clamps. To determine conformance with 3.5.4 and 3.6.4, each of the repair clamps shall be subjected to 4.5.8. The presence of one or more of the following defects shall constitute failure of this test:

a) The clamp cannot be forced through a hole as specified.

b) A clamp falls through a hole when attempting the repair.

c) Permanent deformation of separation of any part of the clamp observed during or after testing.

d) The clamp leaks at anytime during the pressure test test.

4.5.8 Pressure test procedure for repair clamps: One slit 2-1/4 inch long shall be cut into a polyurethane coated nylon fabric material that is a minimum of 1/32 of an inch thick. The slit shall penetrate completely through the coated fabric. Repair the slit with a repair clamp provided from a type II or III repair kit. With a torque wrench, tighten the clamp to no more than 30-inch pounds. (If the repair clamp design uses a wing nut, it may be replaced by a hex nut of identical material during this test.) The repair shall be accomplished with access to only one side of the coated fabric. Using water as a test fluid, apply a 5 psi hydrostatic pressure to the coated fabric material side that has the bottom portion of the repair clamp exposed. Hold the pressure at a minimum of 5 psi for 24 hours. Attempts to retighten to no more than 30 inch-pounds will be allowed only during the first hour of the pressure test. Repeat this test procedure with a 4-inch slit and a 6-inch slit and the applicable clamps.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2e). When actual packaging of materiel is to be performed by DoD personnel, these personnel need to contact the responsible packaging activity to ascertain requisite packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Department or Defense Agency, or within the Military Department's System Command. Packaging data retrieval is available from the managing Military Department's or Defense Agency's automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

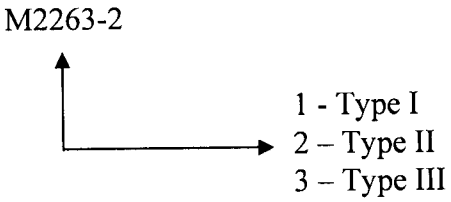
(This section contains information of a general or explanatory nature which is helpful, but is not mandatory.)

6.1 Intended use. The repair kits covered by this specification are intended for temporary repair of collapsible fabric tanks and drums used to store drinking water, diesel fuel or JP-8.

6.2 Acquisition requirements. Acquisition documents must specify the following:

a. Title, number, and date of this specification.
b. Type of repair kit required (see 1.2).
c. Issue of DoDISS to be cited in the solicitation and, if required, the specific issue of individual documents referenced (see 2.3).
d. When first article is not required (see 3.2).
e. Packaging requirements (see section 5.1).

6.3 Part or identifying number. The following part identification numbering procedure is for government purposes and does not constitute a requirement for the contractor. This example describes a part numbering system for specification ATPD-2263.



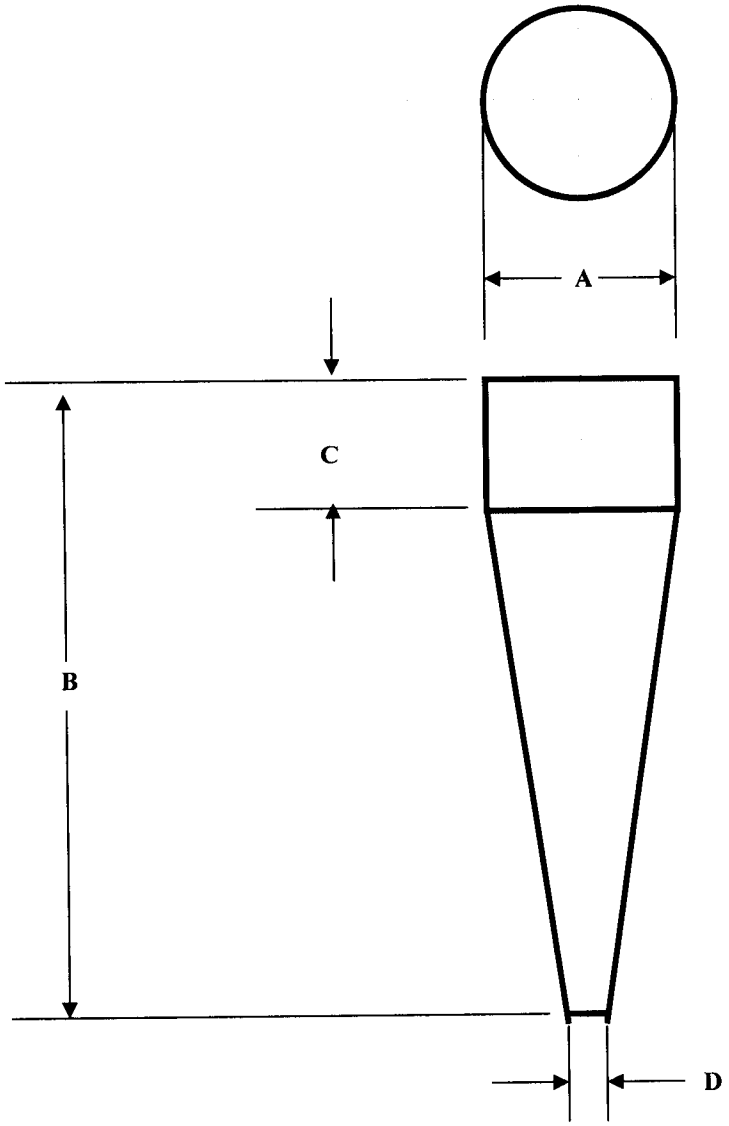
6.4 Subject term (key word) list.

Clamp
Plug
Drum
Tank

Custodian:
Army - AT

Preparing activity:
Army - AT

Review activities:
Army - DepSO
Air Force - 99
DLA - CC
Navy - YD1



NORMAL SIZE	DIAMETER A	DIMENSION B	DIMENSION C	DIAMETER C
.62	.62	3.00	.50	.12
1.50	1.50	4.50	1.00	.12
2.00	2.00	5.25	1.00	.12

NOTES:
1. UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES: .XX = ± .06.
2. DRAWING NOT TO SCALE.

FIGURE 1. PLUG.